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THE

Journal of the Society of Arts,

AND OF

THE INSTITUTIONS IN UNION.

114TH SESSION.]

FRIDAY, NOVEMBER 22, 1867.

[No. 783. VOL. XVI.

Society for the Encouragement of Arts, Manufactures, and Commerce.

FOUNDED IN 1754. INCORPORATED BY ROYAL CHARTER IN 1847.

ONE-HUNDRED-AND-FOURTEENTH SESSION, 1867-68.

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THE SOCIETY OF ARTS was founded in 1754, and incorporated by Royal Charter in 1847, for "The Encouragement of the Arts, Manufactures, and Commerce of the Country, by bestowing rewards for such productions, inventions, or improvements as tend to the employment of the poor, to the increase of trade, and to the riches and honour of the kingdom; and for meritorious works in the various departments of the Fine Arts; for Discoveries, Inventions, and Improvements in Agriculture, Chemistry, Mechanics, Manufactures, and other useful Arts; for the application of such natural and artificial products, whether of Home, Colonial, or Foreign growth and manufacture, as may appear likely to afford fresh objects of industry, and to increase the trade of the realm by extending the sphere of British commerce; and generally to assist in the advancement, development, and practical application of every department of science in connection with the Arts, Manufactures, and Commerce of this country."

The following may serve to indicate the varied nature of the Society's operations. So early as the middle of the last century, its efforts were directed to improving Agricultural implements; raising, planting, and preserving timber; improving the culture of most kinds of corn and grass seeds, and the introduction of new root crops; also the reclamation of large tracts of land from the sea, thus extending the means of producing food for the people. In applied Chemistry and Metallurgy it collected much information relative to improvements in dyeing and tanning, the make of crucibles and retorts, the discovery of cobalt, zaffre, and smalt, and the manufacture of iron, copper, and tin; in Manufactures it has given to the world many improvements, such as the loom for weaving fishing-nets, spinning-machines, the make of Persian carpets, druggets, cambric, lace, and various kinds of paper. It erected the first saw-mill used in this country, and has in-

troduced many improvements in ship-building, the diving-bell, floating-lights, the construction of cranes and jacks, and manufacturing machines and tools in general.

In our Colonies the Society has been instrumental in establishing Botanic Gardens, thereby aiding the importation and production of the spices, fruits, and gums of Foreign Countries, and their more general introduction into Commerce. It has also been the means of introducing many new substances, such as gutta-percha, cocoa-nut oil, &c., thereby creating new sources of trade.

Among the important but less known works of the Society may be mentioned the establishment of a regular supply of Fish to the London market; upon this work the Society expended many thousands of pounds.

In the Fine Arts the Society not merely encouraged the study of Art at a period prior to the existence of the Royal Academy and Government Schools, but, by allowing artists to make collections of their works, and to exhibit them in the Society's Rooms, in 1760, it thereby established permanent Exhibitions of Art in this country, out of which grew the present Royal Academy. Among the names of those rewarded by the Society in their youth, will be found Flaxman, Bacon, Nollekens, Uwins, Landseer, Mulready, Ross, Eastlake, Millais, and other leading Artists.

Since its incorporation by Royal Charter in 1847, by holding smaller Industrial Exhibitions, the Society prepared the way for the first Great International Exhibition, held in 1851, which was originated by the Society under the presidency of His Royal Highness the Prince Consort. The Society at first entered into an agreement with contractors to carry out the undertaking, but subsequently applied to Her Majesty to issue a Royal Commission, a petition which was graciously acceded to. The more recent action of the Society, in reference to the International Exhibition of 1862, is well known. It raised a Guarantee Fund of £450,000, to meet the expenses of the undertaking, and nominated the Commissioners, who were afterwards appointed by Her Majesty.

The Artistic Copyright Act of 1862 was prepared and carried through Parliament by a committee of the Society, and the amendment of the Laws bearing upon Industry and Commerce, especially the Patent Laws, the improvement of the Dwellings of the Labouring Classes, and the education of the workman have at various times occupied its attention; but Arts, Manufactures, and Commerce—the objects which it was established to promote—afford so wide a field of investigation, that the nature of the Society's action, and its method of carrying out the objects of its founders, can only be fully known to those who take a continued interest in the Society itself.

MEETINGS OF THE SOCIETY.—The Session commences in November and ends in June. At the Wednesday Evening Meetings during the Session, papers on subjects relating to inventions, improvements, discoveries, and other matters connected with the Arts, Manufactures, and Commerce of the Country are read and discussed, full reports of them being given in the Weekly Journal published by the Society.

The following are the dates of the Meetings for the Session 1867-8 :—

1867. November . . .	—	—	20	27	1868. March	4	11	18	25
„ December . . .	4	11	18	—	„ April	1	—	15	22 29
1868. January . . .	—	—	15	22 29	„ May	6	13	20	27
„ February . . .	5	12	19	26	„ June	—	—	—	24*

These meetings are free to Members of the Society, who are entitled to admit *two* friends to each meeting.

CANTOR LECTURES.—In addition to the Wednesday Evening Meetings, courses of Lectures, entitled “Cantor Lectures,” are delivered on subjects bearing upon the Arts, the Applied Sciences, Commerce, and Industry. The Courses for the Session 1867-8 will be duly announced. These Lectures are free to Members of the Society, who are entitled to admit *one* friend to each Lecture.

JOURNAL OF THE SOCIETY OF ARTS.—This journal, which is sent free to Members, is published weekly, and contains, in addition to the Reports of the Society's Proceedings, Reports of the Institutions in Union, and a variety of Information connected with Arts, Manufactures, and Commerce.

LIBRARY AND READING ROOM.—The Library and Reading Room are open to Members, who are also entitled to borrow books.

CONVERSAZIONI are held, to which the Members are invited, each Member receiving a card for himself and lady.

* The Annual General Meeting: the Chair will be taken at 4 o'clock. No Visitors are admitted to this Meeting.

MEMBERSHIP.—The Society consists of upwards of three thousand members. Candidates for Membership must be proposed in accordance with certain regulations, which may be ascertained on application to the Secretary. The Annual Subscription is Two Guineas, or a Life Subscription of Twenty Guineas may be paid. There is no entrance fee.

The Society is at present engaged in carrying out various objects, among which are the following :—

EDUCATION.—*Union of Institutions.*—In 1852 the Society founded its “Union of Institutions,” and now has about three hundred Literary, Scientific, and Mechanics’ Institutions, District Unions, and Local Educational Boards, in the United Kingdom and the Colonies, in Union with it, one of the principal objects of this “Union” being the promotion of adult education, particularly by means of examinations.

During the past year the Society has examined 1,439 candidates, in 32 subjects, and has awarded 61 prizes and 1,534 certificates.

The whole of the General Prizes are offered to female candidates on the same terms as to males; and, in many of the subjects, an additional Prize is offered to females.

Special Prizes are also offered this year by the following Companies, Societies, and individuals :—Harry Chester, Esq., in Political and Social Economy; Thomas Twining, Esq., Domestic Economy; the President and Council of the Royal Geographical Society, Geography; the Council of the Royal Horticultural Society, Botany, Fruit and Vegetable Culture, and Floriculture; the Proprietors of the *Gardener’s Chronicle*, Fruit and Vegetable Culture, and Floriculture. The Worshipful Company of Coach and Coach Harness Makers also contributes to the Fund for Special Prizes. Programmes of the Examination and particulars of the Union may be had on application to the Secretary of the Society.

MUSICAL EDUCATION.—A Committee, appointed by the Council early in the year 1865, has been actively engaged in taking the evidence of most of the chief authorities in the musical profession, and has published two reports pointing out how, in their opinion, a really national Academy of Music may be established in this country.

ART-WORKMANSHIP PRIZES.—The Society is directing its attention to the encouragement of Art-Workmen, by offering premiums for works in wood-carving, modelling, repoussé and hammered work in metal, chasing, ivory-carving, painting on enamel and porcelain, marquetry, glass-engraving, &c. For the present Session, the Society offers 87 prizes, particulars of which may be had on application to the Secretary. The Worshipful Company of Goldsmiths and the Worshipful Company of Salters have contributed to the Prize Fund. The articles sent in by competitors are exhibited in the Society’s Rooms, for the inspection of Members and their friends.

PARIS UNIVERSAL EXHIBITION, 1867.—Believing that visits on the part of skilled workmen to the Exhibition in Paris would not only exercise a beneficial influence upon the men themselves, but also upon the progress of industry in the United Kingdom, the Council of the Society of Arts raised a fund (to which Five Hundred Pounds was added by Her Majesty’s Government), to aid a limited number of workmen to proceed to Paris, for the purpose of studying and reporting upon the Exhibition. These reports will shortly be published by the Society.

SPECIAL PRIZES.—The Society is now offering Special Prizes for various objects, such as the best published treatise on Jurisprudence, the best process for Preserving Fresh Meat, the best Steam Fire-engines, the production of Fuel from Peat, the best essay on the Harvesting of Corn in Wet Seasons, &c.

FOOD OF THE PEOPLE.—During the past Session the Society has been actively engaged in investigating the question of increasing the supply of Food for the People, and a Committee has been formed for that purpose. This Committee has appointed Sub-committees on Meat, Fish, Milk, Cooking and Cooking Apparatus, &c.; and much valuable information has been already collected, and published in the Society’s *Journal*.

P. LE NEVE FOSTER,

*Society’s House, Adelphi, London, W.C.,
November, 1867.*

Secretary.

Announcements by the Council.

ORDINARY MEETINGS.

Wednesday Evenings at Eight o'clock :—

NOVEMBER 27.—“On the Diplomatic and other Conferences held recently in Paris with reference to International Coinage, Weights, and Measures.” By LEONE LEVI, Esq., Professor of Commercial Law in King's College, London.

DECEMBER 4.—“On the Relation between Health and Wages.” By J. H. STALLARD, Esq., M.D.

DECEMBER 11.—“On Industrial and Scientific Education; with Notes on the Systems pursued, and the Works produced, in Continental Schools, as exemplified in the Paris Exhibition, and Suggestions for the Establishment of Trade Schools in England.” By ELLIS A. DAVIDSON, Esq.

DECEMBER 18.—“On the Principles that Govern the Future Development of the Marine Boiler, Engine, and Screw Propeller.” By N. P. BURGH, Esq., C.E.

CANTOR LECTURES.

Owing to unavoidable circumstances, Dr. Crace Calvert regrets that he will be unable to give a course of lectures before Christmas, as arranged.

The first course for the present session will be “On Art, especially including the History and Theory of Sculpture,” by Richard Westmacott, Esq., M.A., F.R.S., Professor of Sculpture in the Royal Academy, and will consist of three lectures, to be delivered on Friday evenings, the 6th, 13th, and 20th December.

The second course will be “On Food,” by Dr. Letheby, Medical Officer of Health for the City of London. A third course will be given.

The lectures will commence each evening at eight o'clock, and are open to members, each of whom has the privilege of introducing one friend to each lecture.

SUBSCRIPTIONS.

The Michaelmas subscriptions are due, and should be forwarded by cheque or Post-office order, crossed “Coutts and Co.,” and made payable to Mr. Samuel Thomas Davenport, Financial Officer.

Proceedings of the Society.

FIRST ORDINARY MEETING.

Wednesday, November 20th, 1867; WILLIAM HAWES, Esq., F.G.S., Chairman of the Council, in the chair.

The following candidates were proposed for election as members of the Society :—

Argles, Frank, A., J.P., Eversley, Milnthorpe.

Atwood, Josiah, 2, Lyncombe-villas, New Wandsworth, S.W.

Blagrove, John Henry, Calcot-lodge, Reading.

Blanford, Thomas, 91, New Bond-street, W.

Bostock, E., Stafford.

Boulton, William, Burslem, Staffordshire.

Brown-Westhead, T. C., Cauldon-place, Staffordshire Potteries.

Champion, Alfred J., 816, Old Kent-road, S.E.

Clark, Charles, 10 Albert-road, Regent's-park, N.W.

Conder, Edward, Kingsland-bridge, N.

Corcoran, Bryan, jun., Charlton-house, Bow-road, E.

Cottenham, Earl of, Tandridge-court, Godstone, Surrey.

Curwen, Rev. John, 7, Upton-place, Forest-gate, E.

Dartmouth, Earl of, Patshull-hall, Wolverhampton, and 40, Grosvenor-square, W.

Dawson, Thomas, Mayville, near Taunton.

Dodd, George Ashley, 40, St. James's-street, S.W.

Evans, John Harry, Rose-lodge, Castle Bar-hill, Ealing, W., and 22, Moorgate-street, E.C.

Fazakerley, S. N., 17, Montagu-st., Portman-sq., W.

Frodsham, George, jun., Change-alley, Cornhill, E.C.

Giles, George, Westfield, Bonchurch, Isle of Wight.

Gover, Charles Edward, Madras, (care of A. G. Gover, 7, Grundy-street, Poplar New-town, E.).

Griffin, Daniel, Albany, W.

Healey, Thomas, Science and Art Department, South Kensington, W.

Helsham, G., St. Mary's Hall, King's Lynn.

Hippisley, Henry, Lamborne-pl., near Hungerford, Berks

Johnson, Thomas, 32, John-street, King's-road, Bedford-row, W.C.

King, William, Gas-office, Newington-street, Liverpool.

Le Cheminant, John, 39, Queen Anne-street, W.

Lent, Richard, 41, Bloomsbury-square, W.C.

Lichfield, Earl of, Shugborough-hall, Staffordshire.

Mackinlay, John, 13, Dorset-terrace, Clapham-road, S.

McLagan, Peter, M.P., Burlington Hotel, Cork-st., W.

Munbee, Major-General G. B., R.E., J.P., Highbury-villa, Weston-super-Mare.

Nelson, George H., the Lawn, Warwick.

Nicholls, Richard, 46, Aldermanbury, E.C.

Pam, Jacob, 9, Ely-place, E.C.

Peczenik, Leon, 1, Bloomsbury-square, W.C.

Peirce, Clement James, 57, New Bond-street, W.

Phillips, David, 135, Sloane-street, S.W.

Pleydell-Bouverie, Philip, 16, Hill-street, W.

Pratt, J. Tidd, 28, Abingdon-street, S.W.

Price, Lorenzo T. C., 17, Hollis-croft, Rotherham.

Procter, William, M.D., 24, Petergate, York.

Stephens, Henry, 18, St. Martin's-le-Grand, E.C.

Van Owen, Lionel, 34, York-terrace, Regent's-pk., N.W.

Ware, James, Tilford-house, Farnham, Surrey.

Woodward, H. Toze, Blakebrook, Kidderminster.

Wright, Edwin, Constitution-hill Works, Dudley.

AND AS HONORARY CORRESPONDING MEMBERS.

Salamah Bey, Chief Telegraph Engineer, Railway Station, Cairo.

Frann, Otto, Fray Bentos, Uruguay.

The CHAIRMAN delivered the following ADDRESS.

Through the kind appreciation, by my colleagues, of my attention to the business of the Society, I have the honour to address you on the opening of the 114th Session.

Few societies can refer to so long a period of consistent exertion. In the 114 years which have elapsed since it was founded, a great variety of subjects, having a direct influence upon the progress of the Arts, Manufactures, and Commerce of the country, have been considered by the Council, and have been brought before the public in a practical and useful form. It is not necessary for me to enumerate the many important inventions and scientific discoveries which have been first publicly explained in this room, my object in referring to them being rather to stimulate the members of the Society to continue to make exertions equal to those of past times, so that we may now, as heretofore, maintain our position as the largest body associated together for the encouragement of Arts, Manufactures, and Commerce which exists, or, indeed, has ever existed.

The field for our exertions is wider than ever ; the subjects which appear specially to belong to us increase in number and usefulness year by year, and a great responsibility rests upon the Council and the Society that the opportunity it now has of widening its sphere of action should not be neglected.

The progress of trade and manufactures all over the world quite precludes us from considering the best means of promoting Arts, Manufactures, and Commerce in reference to our own country alone ; and it will be my duty, after explaining the operations of the Society during the past year, to suggest more extended plans for future years, in realising which I hope the Council will receive your cordial support.

But before I enter upon the business of the Society, allow me to refer to the losses we have sustained among our members during the past year. Fortunately, our obituary among distinguished members will include but few to whose scientific character and influence over the progress and prosperity of the Society it is necessary for me specially to refer.

In Science, this Society, in common with the world at large, has lost one of its most—if not its most distinguished member—Michael Faraday. In speaking of him I cannot add a word which will convey to you a higher estimate of his eminently scientific character than you all entertain. His world-wide reputation as a man of science—the purity of his private life and character—his kindness to every one seeking his advice or assistance, raised him so high in public estimation, that no words of mine can add to the lustre of his fame. But as a private friend—as my first tutor in chemistry—as one to whose lucid teaching, so far back as in 1825—to whose anxiety to convey information to his pupils, and to whose example in patient investigation and earnest inquiry after truth I owe so much, I hope you will excuse my expressing the extreme gratification it afforded me last year to place in his hands, as your representative, the gold Albert Medal of this Society, perhaps the last in the long list of honours which scientific and learned societies in all parts of the world seemed to vie with each other in showering upon him, a presentation cordially approved by our Royal President, and the award of which was, I have reason to know, a true source of pleasure to Dr. Faraday.

It is next my duty to refer to a loss which was deeply felt by every member of the Council. I allude to the death of Sir Thomas Phillips, which occurred, as you will all remember, after only a few days' illness, towards the latter end of last Session. He had for many years taken a most prominent and most useful part in all our deliberations, and in the management of our affairs, and was well known to all frequenting this room. He filled the office of Chairman of Council for three years, and after an interval of three years was again selected by his colleagues to preside over their deliberations. He was a judicious adviser and a sincere friend, and earned, by a long and consistent course, in public and in private life, the esteem and respect of all who enjoyed his friendship.

From among our musical members we have lost Sir George Smart. He died at the age of 91, having retained his faculties, and his power of enjoying music, to the last. He studied under Dr. Ayrton, in 1780, and first appeared in public as a Chapel Royal boy at the Handel Festival held in Westminster Abbey in 1784. He was the friend of Haydn, Spohr, Beethoven, Weber, and Mendelssohn, and his advice

and assistance were sought by the greatest singers and performers of more recent times. He played before Napoleon I. in 1802. He was knighted in 1811, and directed the Handel Festival in Westminster Abbey in 1834, fifty years after his first appearance as a boy at the festival held in the same place in 1784. His works, not very generally known, but which are marked by judgment and taste, have been recently published by command of her Majesty, and will probably attract more attention now than they did during his lifetime.

In education we have lost the Dean of Hereford, Dr. Dawes, who was very early in the field as an advocate of popular education. He was for several years one of the Society's Examiners in Domestic Economy, and took great interest in its proceedings.

Having thus paid our tribute of respect to our deceased members, let me call your attention to the proceedings of the Society during the past year.

There have been two committees appointed which have occupied a great deal of the time and attention of your Council—the Food Committee and the committee to which was delegated the selection of working men to visit Paris.

The evidence, printed from time to time in the *Journal*, relating to the supply and quality of the food provided for the consumption of this great city, will have put the members in possession of facts collected by an extensive inquiry among those best able to afford correct information on this important subject. From a very early period the Society has devoted much attention to this subject, by inquiries conducted by committees as in the present case, and by the offer of prizes for improvements in the breed of cattle and sheep ; for a more regular and increased supply of fish ; for the introduction of new vegetable products from abroad ; or, as very recently, by the offer of prizes for the best means of harvesting corn in wet weather, and for preserving and bringing to this country, in sound condition, and at a price that will place it within the reach of the people of this country, the meat which is now wasted both in our colonies and in foreign states. In each of these directions the Council of the Society has been much assisted from time to time by its members, several of whom have placed funds for prizes at the disposal of the Council, and at this time a prize of £70, offered by Sir Walter Trevelyan, for the best mode of preserving meat in our colonies or other countries, so as to bring it here at a price and in a state fit for the food of the people, and to which the Society will add its gold medal, is open for competition.

This Committee, reappointed this session, and presided over by the Right Hon. H. Austen Bruce, is now meeting twice a week, and will, I trust, elicit information of permanent utility to the country. One of its first acts this session has been to seek an interview with the Home Secretary, to represent the hardship to the costermongers and the injury to the working classes which will follow any approach to a rigid enforcement of some of the provisions in the Metropolitan Streets Act, 1867, especially in some branches of trade. These provisions must have been framed by some one entirely unacquainted with the manner in which food, especially perishable food, is distributed among the poor in this metropolis. To withdraw the supply by the costermonger would be to deprive thousands of their regular and legitimate livelihood, and probably tens of thousands of the market where they now obtain the cheapest and best supply of provisions. Another of the special subjects to which it is directing its atten-

tion is the food markets of London, and, when we consider how extremely inadequate these are to the wants of our constantly increasing population, I am sure that you will feel that the Committee is most usefully employed in attempting to obtain a remedy for this evil.

The other Committee to which I referred, issued a report suggesting that, following the example of the Emperor of the French in 1862, a number of English workmen should be sent to Paris to study the French Exhibition, on the condition that each workman should write a report, to be sent to the Society, on the special industry to which he belonged; but the Council, not considering that the expense of carrying such a recommendation into effect should be borne exclusively by the Society, invited a special subscription to enable them to accomplish so desirable an object. Our Royal President contributed 30 guineas, the Society 100 guineas, and the Committee of Privy Council on Education promised £500 if an equal sum was subscribed, on the condition that the names of the workmen sent should be forwarded to the Committee of Council for approval, a condition which was complied with before the money was received.

The sum subscribed amounted to £1,030, which enabled your Council to assist about eighty skilled workmen, representing the principal industries of the country, to visit and to examine the quality and cost of the work executed in their respective trades by the best workmen of foreign countries. So eager were the workmen of London and of other seats of industry to avail themselves of this assistance, that selection sometimes became difficult; and I believe I may state that not one man was so assisted (for the Committee did not pretend to pay their entire expenses) who did not bring a recommendation from his employers, or from a number of his fellow-workmen, and in some instances from both, assuring the Committee of his fitness to undertake the task assigned to him. The endeavour of the Committee was to select men whose intelligence and knowledge of their particular trades and whose position among their fellow-workmen were such that their reports on their respective branches of industry would not only be good in themselves, but would command the attention of their fellow-workmen.

The reports, nearly all of which have been received, are now in the press, and, with a few trifling literal and grammatical corrections, will be printed exactly as they have been delivered to the Society. They will be ready for publication before Christmas, and the Council believe they will form an interesting volume, and that the result of the inquiries made by these artisans will convey a great deal of useful information to their fellow workmen in this country.

The men were received in the most friendly manner by the French workmen. They had access to many workshops, and, by means of the very intelligent body of guides and interpreters provided for them, and with the assistance of several of their own body who spoke French, they were able to obtain a very good insight into the quality of French work and the habits of French workmen. I regret I cannot illustrate these remarks by extracts from the reports, but any attempt to do so would occupy too much time.

It is gratifying to find that the conduct of the men whilst in Paris, and the intelligence they displayed in their inquiries, were so appreciated by the French authorities at the Exhibition, that they have applied for permission to translate the reports for circulation among French workmen.

The Committee received valuable co-operation from the members of the Chamber of Commerce at Birmingham, who subscribed liberally to the fund, and selected twenty-five workmen and foremen to represent the various branches of trade carried on in that district. The Chambers of Commerce of Bradford and Nottingham and the Mayor of Sheffield also afforded considerable assistance.

The success of this attempt to improve the acquaintance of our artisans with the work of those engaged in the same branches of industry abroad has been so marked, and the aid afforded has been so gratefully received by the workmen themselves, that the Council hope, ere long, to submit the report of another committee, just appointed, to consider the best mode of continuing this inquiry by working men into the state of the industries of their competitors in foreign countries generally; the intention being, if funds are forthcoming for the purpose, to send annually a small number of artisans, carefully selected, to one or more of the capitals of Europe, to study the productions of their respective trades, and report upon them. The plan is not yet matured, but is one which I have every reason to hope will tend to continue to English industry the benefits which an intelligent study of the French Exhibition by our workmen of the present day must certainly have conferred upon it.

This leads me to notice the recent appointment of a Committee to inquire into the best means of encouraging what is now styled "Technical" education, with authority to convene a conference of those interested in the subject to be held in this room, to consider how the objects proposed to be accomplished can be best promoted. And here, as I have already spoken of the long and continuous action of our Society in promoting education, I may appropriately refer to a paper published by this Society in 1765, one hundred and two years ago, upon education of this character, which appears to me specially to bear upon this very important subject. The writer says, in a letter dated August 4, 1765:—

"Let the farmer's son be taught to read well, to write a good hand, and in due time also be perfected in vulgar and decimal arithmetic; let him, moreover, be taught mensuration, surveying, and gauging; let him be instructed in the rationalia of malting and brewing, and let him besides have general ideas given him of the nature and causes of the various fermentations; let him be able to draw so well as to take the representation of a living object, or describe, in due proportion, the several parts of any machine or engine. I should also approve much of his knowing something of geometry, and should be glad to add the rudiments of botany, and as much natural philosophy as might serve to give him some idea of the nature of vegetation."

He then proceeds to remark on the deficiencies of his own education. He was greatly at a loss from not having been taught drawing, and for want of a competent knowledge of geometry and mechanics, so that when he met with a plough which might differ in some respects from any he before knew, he was puzzled which to prefer for want of understanding the principles on which it was constructed, "for certain it is that a ploughwright, to be master of his business, should be a good mechanic, for no man can be sure of giving the 'share' a true direction unless he understands something of geometry."

"As to the learned or foreign languages, I do not conceive they would be of much use to him. The old writers on husbandry he may read in English, and when anything worth attention is published on the subject abroad it is soon translated....."

"Some of your readers may, possibly, imagine that such an education cannot be acquired by every farmer's son, on a supposition that the expense would be too considerable, but this is not the case, for reading, writing, and accounts, with some branches of mathematics, should be taught in every free-school, and it would cost less to educate a son in this manner than to bring him up as an exciseman."

And he goes on :—

"Will any one be absurd enough to say, that were farmers to be so educated, agriculture would still continue unimproved?"

This programme appears to me to describe most accurately what is now called "technical education," or, in other words, an education in the knowledge of the general scientific principles which govern the operations, mechanical or chemical, of the occupation in which each person is engaged; an education which is, therefore, his best preparation for obtaining a sound practical acquaintance with his particular calling.

I will also quote two more passages on the same subject, which are as applicable now as when they were written—one by a great divine, Archbishop Cranmer, 300 years ago, and the other by Adam Smith, 100 years since.

"It was proposed three centuries ago to admit to Canterbury Grammar School none but the sons of gentlemen; 'Whereunto,' as Strype in his Memorials relates, 'the Most Reverend Father the Archbishop, being of a contrary mind, said, 'That he thought it not indifferent so to order the matter; for,' said he, 'poor men's children are many times endued with more singular gifts of nature, which are also the gifts of God, as with eloquence, memory, apt pronunciation, sobriety, and such like, and also commonly more apt to apply their study, than is the gentleman's son, delicately educated.' Hereunto it was on the other part replied, 'That it was meet for the ploughman's son to go to plough, and the artificer's son to apply the trade of his parent's vocation; and the gentleman's children are meet to have the knowledge of government and rule in the Commonwealth. For we have,' said they, 'as much need of ploughmen as any other State; and all sorts of men may not go to school.' 'I grant,' replied the Archbishop, 'much of your meaning herein as needful in a Commonwealth; but yet utterly to exclude the ploughman's son and the poor man's son from the benefits of learning, as though they were unworthy to have the gifts of the Holy Ghost bestowed upon them as well as upon others, is as much as to say that Almighty God should not be at liberty to bestow His great gifts of grace upon any person, nor nowhere else, but as we and other men shall appoint them to be employed, according to our fancy, and not according to His most godly will and pleasure, Who giveth His gifts both of learning, and other perfections in all sciences, unto all kinds and states of people indifferently.'

The poor man's son by painstaking will for the most part be learned, when the gentleman's son will not take the pains to get it. And we are taught by the Scriptures that Almighty God raiseth up from the dunghill, and setteth him in high authority, and whensoever it pleaseth Him of His divine providence, He deposeth princes unto a right humble and poor estate. Wherefore if the gentleman's son be apt to learning, let him be admitted; if not apt, let the poor man's child that is apt enter his room."

On the same subject Adam Smith says :—

"There is scarce a common trade which does not afford some opportunities of applying to it the principles of geometry and mechanics, and which would not there-

fore gradually exercise and improve the common people in those principles, the necessary introduction to the most sublime as well as to the most useful sciences. The public can encourage the acquisition of those most essential parts of education by giving small premiums and little badges of distinction to the children of the common people who excel in them."

The progress of our educational proceedings in the past year has been most satisfactory. The number of candidates for examination has very much increased. This year 2,754 candidates presented themselves for elementary examination against 1,814 last year; and for final examination 1,439 offered themselves this year against 1,097 in 1866; moreover, the papers worked have increased from 1,571 to 2,050. The first-class certificates awarded have been 343 against 203; the prizes, 61 against 52; and the examiners report most favourably on the general character of the papers worked.

The number of Local Boards at which final examinations have been held has increased from 91 to 120, and in all of them there appears to be increased activity and earnestness in their work.

The results obtained from the operation of the Society's system for encouraging young men engaged in various industrial occupations, most of whom have but just passed through their apprenticeship, voluntarily to submit to examinations of a high class, may afford some useful suggestions to assist us in giving a practical direction to the demand now arising for the introduction of that new system of education to which I have just referred.

We find, from an analysis of the list of the present or proposed occupations of the 1,693 candidates from whom returns were received, that a very large proportion of them, between 700 and 800, were persons actually employed in mechanical work, having most probably learned as apprentices, or being in the course of learning, the technical methods of working the materials and using the tools required in their respective trades, but to whom the additional knowledge of drawing, chemistry, metallurgy, light heat and electricity, botany, the principles of mechanics, and practical mechanics, mensuration, geometry, algebra, arithmetic, bookkeeping, and foreign languages (one or more of these subjects, according to the intended occupation), would be of inestimable value, enabling them to understand the nature and capabilities of the materials in which they work, the principles which should govern their application to different purposes, and affording to them, by a knowledge of mechanical and free-hand drawing, the ready means of recording or of illustrating ideas which must constantly arise in the minds of intelligent working men, when executing work under the direction, or from the drawings, of others.

We also find that out of the 1,693 candidates referred to, 1,281 were under 22 years of age, who can only, in their spare time after working hours, have entered upon and continued for two or three years successively, the severe study required to pass our examinations, from a strong conviction of the necessity of possessing knowledge to ensure their future advancement, and who certainly have no time to devote to study for the purpose of acquiring other than useful and practical information. This then, being the object of their study, we find that out of 2,050 papers only 9 have been worked in Latin and Roman history, whilst 233 have been worked in French and

English history, and 1,341 in the following subjects:—Arithmetic 520, algebra 87, chemistry 76, geography 98, drawing 325, and bookkeeping 235.

The Prince Consort's Prize has again been awarded to a student of the City of London College, William Meadows, a clerk, 19 years of age, who has taken eleven first-class certificates and nine prizes in the years 1864-5-6 and 7.

With such facts before us, we can arrive at no other conclusion than that the encouragement afforded by this Society, to working men to improve themselves, is providing annually a sound industrial and scientific education to a large number of artisans—last year numbering nearly 1,700—an education which, I believe, is producing workmen in all departments of trade of the highest order, and surpassed in no foreign country; but with all this, there is still one branch of education of the greatest importance—that of the eye and the taste—in which we are lamentably deficient, and which cannot be provided by any examination or school instruction.

In this respect alone it appears to me that there is any real and substantial superiority in the foreign over the English workman; and until we can admit the working classes to our museums and our galleries of paintings and sculpture on those days and at those hours when they can take their wives and children, as foreigners do, to see and become familiar with works of art of every description, and thus enable them to appreciate the beauties of form and colour, and until we can add to the number of such institutions by establishing new museums and picture-galleries in the populous districts of our large manufacturing towns, I fear it will be hopeless to expect that technical education, as it is now the fashion to call it, can raise our national taste and skill in the production of artistic works, or in the application of artistic designs to ordinary work, to the level of that possessed by foreign workmen. This education of the eye and taste must be a work of years—almost of generations, which all foreigners have long since enjoyed without trouble or expense. It has been impressed on their minds during their hours of pleasure and relaxation—their Sunday afternoons are spent in the midst of works of art, mostly of the finest taste—and every year that we lose in affording the same advantages to our industrial classes is hastening forward the time when foreign countries, which possess models of our finest workmanship, and are rapidly equalling it in execution, will surpass us, not only as they now do in taste, but in taste combined with good workmanship.

If then this Society, by first affording to young men the opportunity of studying the principles which govern the industrial operations in which they are engaged, can afterwards give to a limited number annually—say to the first-class prizemen of the year who are working men—an opportunity of visiting the principal seats of foreign industry, much will be done to remove the erroneous idea now entertained by so many working men, that employment and good wages depend on the arbitrary restrictions upon labour imposed by trade societies.

The Council hope that the reports of the artisans sent to Paris to study the French Exhibition will induce their fellow-workmen to appreciate the importance of the cultivation of that pure taste which characterises most foreign work, and that trade societies will thereby be brought to see the necessity of co-operating in the work begun by this Society, by applying a portion of their funds, as we have done, in assisting their members

to obtain a knowledge of foreign industry, its capabilities and its cost, instead of applying them to the maintenance of trade regulations, the tendency of which is often to cramp the energies and intellect of their members, and to foster ideas of native superiority quite inconsistent with the efforts which must now be made if we are successfully to compete with our intelligent and industrious foreign rivals.

The Council has every reason to believe that the reports, when published, will be interesting not only to the writers' fellow-workmen, but to all interested in the progress of industry; they will be found to contain a singular unanimity of opinion upon the deficiency of artistic education in this country—upon the want of the opportunities enjoyed by foreign workmen to cultivate their taste, and upon the superior position workmen hold in Paris to that held by the same classes in England; and, considering that they are written by men, most of whom have never before attempted to write a report on any subject, and all of whom are actually engaged in industrial occupations, they will be found, I venture to think, in most cases, creditable to their authors, and will, I feel satisfied, be received with the consideration they deserve. They will show the public that working men do not fear fair criticism, and that they are not unwilling to admit superiority when and where it appears to exist; and they will be specially acceptable and useful to working men as emanating from members of their own body, selected only with reference to their fitness for the work they undertook.

During the past session many interesting papers have been read at the Wednesday evening meetings, and the Society's silver medals have been awarded, and will be presented this evening, to James Fergusson, Esq., for his paper "On the study of Indian Architecture;" to C. R. Markham, Esq., for his paper "On the Tinnevely Pearl Fisheries;" and to S. J. Mackie, Esq., for his paper "On the Construction of Iron Ships, and their Preservation from Corroding and Fouling."

The Gold Albert Medal, which I shall also have the honour to present this evening, has this year been awarded to Messrs. Cooke and Wheatstone for the energy, scientific knowledge, and practical skill, with which they overcame the great difficulties incidental to the successful introduction of electric telegraphy not only in this country but all over the world.

You are aware that the first Albert Medal was presented to Sir Rowland Hill, the second to the Emperor of the French, and that of last year to Dr. Faraday; it therefore appeared to the Council that the almost natural sequence of such awards to the originator of penny postage—to the promoter of free intercourse, personal and commercial, between two such great countries as France and England, the first in arts, manufactures, and commerce in the world—and to the philosopher to whose inquiries into the phenomena of electrical science, and especially as applied to electric telegraphy, the world owes so much—was the presentation of the Gold Albert Medal of 1867 to those by whose energy and genius and by whose application of scientific principles to this most difficult subject the invention and practical application of the electric telegraph to the daily wants of commerce and social life were eminently due.

The Cantor Lectures by Mr. Chaffers and Mr. Hullah, although not, perhaps, so popular as some which have preceded them, afforded a large amount of valuable information, and attracted special audiences

interested in pottery and in the history and study of music.

The arrangements for the present session are in progress. The Council hope to secure the services of Mr. Richard Westmacott, R.A., Professor of Sculpture at the Royal Academy, to deliver a course of lectures, on some branch of the Fine Arts, before Christmas. Dr. Letheby will afterwards give a course upon Food; and the Council believe, in the third course, that they will have the assistance of Dr. Crace Calvert, who, from circumstances beyond his control, has been obliged to postpone the delivery of the lectures announced in the *Journal*.

The competition for the prizes offered to art-workmen was better this year than on any former occasion. The number of competitors was 109 against 61, and the quality of the work greatly surpassed that of last year; and our judges, Mr. R. Redgrave, R.A., and Mr. Digby Wyatt, express their gratification in recognizing that the encouragement given by the Society "to the improvement of art workmen" is at length bearing fruit.

The Musical Committee, which was appointed two years since, has been reappointed this year. Great good has been done by the publication of the evidence taken by this committee. The exact state of our Musical Institutions, and the results derived from them, have been examined and compared with similar Institutions in foreign countries, and it will now rest with the public to decide whether, as at present constituted, the Royal Academy ought to receive an increased grant from Parliament (for without it the Governors cannot meet the demands of the times), or whether a National Academy should be established on a large and comprehensive basis, which would teach and train gratuitously, a certain number of students carefully selected, and give to those who can afford to pay for their education, instruction in vocal and instrumental music of the highest order.

The Council last session endeavoured to procure an amendment of the laws relating to Copyright in Fine Art. With this object in view they had a Bill prepared for consolidating and amending the law, which at present is in a most unsatisfactory condition; but circumstances rendered it necessary to postpone its introduction into Parliament at that time. The Committee under whose superintendence the Bill was prepared has been reappointed, and the Council will take the earliest opportunity of bringing the question before the Legislature this session.

Having thus explained the progress of the business of the Society during the past year, and spoken of our proposed action in the coming session, I will now refer to the International Exhibition just closed in Paris.

The active part the Society has taken in promoting international exhibitions, from 1849 to the present time, makes it almost our duty to consider the effect produced by the changes which altered circumstances, and the desire to avoid repetition, have gradually introduced into their arrangement and management. But before I enter upon any criticism of the Paris Exhibition of 1867, I will refer to its general character as a whole. This Exhibition, then, differed from all its predecessors in having combined with works of art and industry illustrations of the customs, habits, and actual social state of almost every country in the world. The addition of a section devoted to the "*Histoire du Travail*," from the earliest periods to the present time, was a most happy idea. The increased interest which

the inspection of these industrial and ornamental works of ancient times, and of the implements used in their construction imparted to the examination of those of our own time, can hardly be appreciated by anyone who was not fortunate enough to see them. The Exhibition of 1851 was confined to works of industry and fine art in sculpture only; paintings were excluded. In Paris, in 1855, the picture gallery was one of the most attractive and interesting parts of the Exhibition, and the painters of England were for the first time appreciated by foreigners. In 1862, the picture galleries formed one of the greatest attractions and fine art asserted a supremacy which had no place in 1851. And, again, in 1867, the paintings and sculpture of all nations, so arranged that the style and merits of the various countries could be easily compared, formed the great attraction of the Exhibition.

The building of 1851—as novel as specially applicable to the purpose for which it was constructed—was destined to destruction, when the public, feeling that so useful and interesting a structure should not be destroyed, interposed, and it was removed almost bodily to Sydenham, where it now stands, affording to millions recreation and amusement of a rational character such as has never before existed. This building was not, however, imitated in Paris in 1855, but one of a substantial character was erected, insufficient to contain the works to be exhibited, but to which temporary annexes were added for machinery and mechanical appliances. The main building, having no special pretension to beauty of design, still remains. In 1862, a building, of dimensions very far exceeding those of 1851 and 1855, and capable of containing the entire collection, was provided. The picture galleries were admitted by every one to be the most perfect ever erected, but from various causes, into which I will not enter, this building, like its predecessor, was doomed to destruction. This was, however, happily prevented by its purchase and subsequent removal to Muswell-hill, where it will soon be opened, not as a rival to its elegant predecessor of 1851 at Sydenham, but as an adjunct to it in providing rational amusement for the vast population on the north side of the river. The one, in its elegant and instructive courts, exhibits and illustrates the arts of past times, while the other will endeavour to exhibit the arts, industries and national sports of the world as they now exist. But, whatever may have been the opinion of the design of the building in Hyde-park in 1851, in the Champs Elysées in 1855, or of that at South Kensington in 1862, it is difficult to say a word in favour of the erection in the Champs de Mars in 1867. It had no pretensions to architectural design—there was no beauty of proportion—no one point of view externally or internally; all that can be said of it is—and that is no slight merit—that, as a huge, well-arranged warehouse, it answered the purpose for which it was designed.

The arrangement of the Exhibition of 1867 was geographical. Each country exhibited its products in separate compartments, and in fact has made an exhibition of its own. Great advantages appeared to attend this arrangement in former exhibitions where the space separating the products of each country was not so great as almost to preclude comparison one with the other; but, in a building so large as that erected this year in the Champ de Mars, the geographical arrangement was most unfavourable to any thing like a critical examination of the relative merits of the manufactures of the various countries, and this

difficulty was increased by the close approximation in the quality of many of the articles produced by the manufacturers in the different states of Europe.

We have not yet the exact account of the sum received at this Exhibition, but it is generally understood that it will considerably exceed the expenditure incurred for the erection of the building and the expenses of its management. In 1855, there were four rates of admission—5fr., 2fr., 1fr., and 4 sous; whilst this year there has been but one rate of 1fr. and season tickets. The receipts in 1855 from the 5fr. and 2fr. rates of admission were too small to induce a repetition of those high charges; whilst that for the 4 sous rate exceeded that from the 1fr. With such facts it is to be regretted that the minimum rate was on this occasion so high as 1fr. So with us in 1851, the receipts from the 20s., 5s., and 2s. 6d., rates were together only one-fifth of the receipts from 1s.; and in 1862 the same high rates and season tickets were retained. I then advocated that a lower rate should be fixed for one or two days in the week, on the ground that it was the people—the working classes—who were really to derive instruction, practical instruction, calculated to produce a really useful result, from an inspection of the manufactures of foreign countries. The more wealthy classes had many opportunities of observing them at home or abroad; information respecting them was accessible at all times; but no opportunity like that afforded by the inspection of a great International Exhibition could arise to the great mass of working men.

I repeat, then, the observation I made in 1861, that an International Exhibition does not fulfil its duty if it does not allow the artisans of the country in which it is held to study the works of the same class in foreign countries. International Exhibitions are sources of amusement to the upper classes, but they are great educational establishments to the working classes, to whom once in a lifetime they afford opportunities of studying, not only the handicrafts of various countries and peoples, but the natural products of all countries, the great gifts of creation—of examining them and satisfying themselves that the elements of close and active competition, of which they have read but never before seen, exist not only in labour but in the natural products of the world, and that on the cheap and constant supply of them the employment of millions of people and the maintenance of our national greatness depend.

The system of prizes, to which on former occasions I have objected, has been continued in this Exhibition, and I fear has produced, in a greater degree than before, discontent and injustice. If it were difficult, nay, almost impossible, to adjudicate awards of medals—gold, silver, and bronze—fairly among 20,000 exhibitors, how greatly must the difficulty be increased when the number of exhibitors exceeds 40,000; and in considering this subject it must not be forgotten that an incorrect award not only injures all engaged in the same trade, but also misleads and deceives the public. Nothing can, I think, be more delusive than the merit claimed by medallists for superiority over their brother manufacturers who have, or who have not, exhibited; and it appears to me to be manifestly unjust that the Government, upon such slender evidence as can be afforded by the exhibitors of special specimens—often mere *tours de force*, manufactured without reference to cost or to the practical demands of trade—should award prizes through the intervention of juries, which practically give almost a patent right to the recipients of medals.

To these remarks I must add a few upon the Exhibition itself. On no previous occasion have the customs and habits of the various peoples of the world been so elaborately exhibited. We saw not only the natural products and industries of each nation, but by means of costumes, domestic implements, model houses, and modes of living and employment, we were able much more accurately than at any former International Exhibition to appreciate the exact state of the civilisation and industry of every country in the world. The vastness of the Exhibition was its greatest drawback. None but those who systematically examined it could comprehend or appreciate the treasures it contained. On only one department—that of machinery—will I venture an opinion, and well aware as I am that it will not agree with those expressed by various high authorities, I do so with respect, though still with confidence. Various letters have appeared in our *Journal*, the tendency of which has been, if not expressed distinctly, to lead the public to suppose that foreign countries have already equalled, if not surpassed us, in mechanical skill and workmanship. The writers have exaggerated the skill of foreign workmen, and depreciated that of our own. They have assumed that because the first mechanical engineers of Belgium have taken a contract for a certain number of locomotives for the Great Eastern Railway, our superiority has passed away. They also appear to assume that every man engaged in productive industry should be equally well informed, whereas everyone familiar with such matters knows this is not necessary—however desirable it may be—to enable us to maintain our superiority. I took great pains to examine the locomotives and steam engines of foreign countries, carefully looking to the finish, the simplicity, and beauty of construction, and I endeavoured to bring to my mind the respective position of similar machines of the same countries in 1851 and 1862, and I am satisfied that whilst foreign countries, starting from a very much lower point, have advanced in a greater degree since 1851 and 1862 than we have, still our pre-eminence is complete.

During the sixteen years which have elapsed since 1851 every foreign rival has had our best examples to copy. He has had free access to our manufactories, where our newest and best mechanical tools have been seen in action. It would, therefore, have been more remarkable if our rivals had remained stationary in the quality of their work, than that they should have improved as rapidly as they have done. In the same time we have had nothing to learn from abroad, and have had little more to do than to improve and perfect our models of 1851 and 1862, for who that attentively examined the machinery exhibited in those years can forget the beautiful marine engines of Maudslay and of Penn, the locomotives of Stephenson, or the stationary engines of Boulton and Watt, and others, models of workmanship not now surpassed—nay, not equalled by any foreign machinery in the Paris Exhibition of this year, and the same comparison might be made in respect of our cotton and our woollen machinery. Moreover, when we compare our exhibits with those from other countries, we must not forget that many of our most important industries were very imperfectly represented. This, undoubtedly, was our own fault; we had the opportunity afforded to us of exhibiting our finest works, but we did not use it as we ought to have done, either in fine art, in machinery, or in many branches of manufacturing industry.

To our deficiency in style in “articles de luxe” I

have already referred; the remedy by affording our workmen opportunities of forming a correct taste is in our own hands—but in considering this branch of our manufactures we must recollect the effect the rapid progress we made between 1851 and 1862 produced on foreigners, which led to a special inquiry by the French Government into the means by which it had been realised. This rate of progress, I venture to submit, has not decreased since 1862, and we have only to go on as we have done, adding thereto opportunities for the workman to improve his taste and to obtain knowledge of the principles, scientific and practical, upon which the results he has to obtain by his labour are based, and no one can doubt that Saxon energy, skill, and perseverance will now and hereafter, as heretofore, assert its supremacy.

In illustration of the appreciation by the people of the value of the privilege they enjoy in being able to view at all times the most beautiful and costly works of art in their palaces and museums, and of the confidence the French authorities place in their well-known taste and respect for such objects, the troublesome custom of taking umbrellas, parasols, walking-sticks, &c., from each visitor entering the Exhibition was dispensed with, as it is also on their entering the Louvre, the Palace at Versailles, and other galleries, and it is to be hoped that our authorities will soon be able to follow so good an example.

Reviewing, then, the impression the examination of this Exhibition has made upon my mind—considering its vast extent—its cost, not to France, for that has been repaid by the receipts from admissions, but to foreign countries—the enormous number of exhibitors, and the consequent equality of the goods exhibited—and the difficulty, indeed the almost impossibility, of obtaining exact information respecting their relative merits, by those who visited it with a view to study the actual and comparative progress of the world's industry—I can but arrive at the conclusion that it has not realised the original intentions of these undertakings; but, considered as a somewhat indiscriminate exhibition of the world's products, its industries, its customs and daily life, no previous Exhibition has approached it. Admitting this, however, I think it must be many years before another International Exhibition is attempted. Since 1851 they have been too frequent; sufficient intervals have not elapsed to show national progress; and each has become more a great bazaar, than an exhibition of the finest works of art and industry, and the rarest of the world's treasures. Whenever then, another shall take place, let us hope it will be one of selected works, and not an indiscriminate collection of all descriptions of products brought together without reference to quality, variety, or beauty.

In my previous addresses I have referred to public works and improvements in progress; but I am sorry to say that beyond recording the fact that the Thames embankment and main drainage, the two great works of our time, are progressing towards completion, I have nothing to notice. We continue to erect handsome buildings in narrow streets, where they cannot be seen, concerted action and public improvement of our thoroughfares being out of the question. Indeed, the report recently published, in which it is recommended that we should build a new House of Commons, because the present house, still by comparison quite new, is insufficient for the accommodation of its members, is somewhat humiliating.

I hope, however, before we meet next year, we shall be able to record the establishment of a museum of science and art in the east end of the metropolis. Such an institution will be of the greatest value to the artisans residing in that densely populated district, and will be due, I may add, in a great degree to the energy and perseverance of a member recently added to our Council, Mr. Antonio Brady, whose efforts in this direction have been most remarkable. I have much pleasure in adding that the Council, appreciating the importance of this undertaking, have voted one hundred pounds towards the purchase of the site for the intended museum.

The visits to Paris, which so many have made for the first time this year, will, I hope, assist in forming an intelligent and vigorous public opinion upon the question of metropolitan improvements, and that ere long we may have an administration of metropolitan affairs that will not hesitate to make improvements which will raise our metropolis in our own estimation, as well as in that of foreigners.

It now only remains for me to congratulate the members on the continued prosperity of the Society. Our financial position is, I believe, better than it ever has been; and the only thing I wish to impress upon the minds of members is that they should lose no opportunity of communicating to the Society, either for publication in the *Journal* or for the use of our weekly meetings, any new or interesting information they may possess. The Society, from its earliest formation, has relied upon its members for useful information and for active support. It must still do so, and if the members cordially co-operate with the Council, that degree of success which has existed for 114 years will, we hope, be continued into the second century of its existence.

The CHAIRMAN then presented the Prince Consort's Prize of twenty-five guineas to Mr. William Meadows, of the City of London College, who had obtained, in the Society's Examinations, prizes and certificates as follows:—

- 1864. Chemistry—First-class certificate, with first prize.
- „ Animal Physiology—First-class certificate, with first prize.
- „ Geometry—First-class certificate, with first prize.
- 1865. Book-keeping—First-class certificate.
- 1866. Navigation and Nautical Astronomy—First-class certificate, with first prize.
- „ Principles of Mechanics—First-class certificate, with first prize.
- „ Algebra—First-class certificate.
- 1867. Arithmetic—First-class certificate, with second prize.
- „ Domestic Economy—First-class certificate, with first prize.
- „ English Literature—First-class certificate, with first prize.
- „ Mensuration—First-class certificate, with first prize.

The CHAIRMAN then proceeded to distribute the silver medals awarded last session as follows:—

- To James Fergusson, Esq., for his paper “On the Study of Indian Architecture.”
- To Clements R. Markham, Esq., for his paper “On the Tinnevely Pearl Fisheries.”
- To S. J. Mackie, Esq., for his paper “On the Construction of Iron Ships, and their Preservation from Corrosion and Fouling by means of Zinc Sheathing.”

The SECRETARY read a letter from Mr. James Fergusson, expressing his deep regret at being unavoidably prevented from being present to receive his medal. A letter was also read explaining Mr. Markham's absence,

caused by the fact of his having accompanied the Abyssinian Expedition in the capacity of geographer.

Mr. S. J. MACKIE expressed his gratification at the honour conferred upon him.

The CHAIRMAN, in presenting the Albert Gold Medal, which was awarded to Messrs. Cooke and Wheatstone, for the practical introduction of the electric telegraph, not only to this country, but to every country in the world, expressed his regret at the absence of Professor Wheatstone, and remarked that the Council of the Society, under the regulations which govern the adjudication of this medal, could only award one medal annually; but under the special circumstances of the introduction of the electric telegraph, which was due to the joint labours of Messrs. Cooke and Wheatstone, the feeling of the Council was that it was within their province to award, not two medals, but one medal given in duplicate; this course had therefore been taken. It was a cause of just pride to this country that we should have been the first to introduce this discovery to the world, one fraught with such inestimable blessings to mankind. It was a special gratification to him to be the medium of presenting this medal to one with whom he had been long on terms of close personal friendship, for in the year 1837 Mr. Cooke exhibited his first electric telegraph in his (the chairman's) own drawing-room. He now begged to present to Mr. Fothergill Cooke the Albert Gold Medal of the Society.

Mr. FOTHERGILL COOKE said he could not accept this award in silence. It was one of the highest honours that could be conferred upon any individual, associated as it was with the name and the memory of one who was for so many years President of this Society, and who was so much beloved for his personal goodness, and for the warm interest which he ever took in all that tended to the benefit of this country. They knew very well what the late Prince Consort was to this Society, and anything associated with his name must be especially valued. He received this medal under peculiar circumstances, because it was before this Society he first publicly exhibited the electric telegraph in operation, and from time to time he had had the honour of submitting papers to them on the subject, therefore any award from this Society would always have a peculiar value to him. Moreover, he felt not a little proud of having his name placed in the same roll of honour with those of Sir Rowland Hill and Professor Faraday. The Chairman had mentioned this evening that it was in this country the electric telegraph was first introduced. He hoped that would not be forgotten, for, besides being an individual source of gratification to himself, he hoped the nation would one day feel proud of having set the example in this respect to the other countries of the world. He returned his grateful thanks for the high honour which had been conferred upon him.

Proceedings of Institutions.

CITY OF LONDON COLLEGE.—On Thursday evening, the 7th November, the prizes and certificates gained at the annual examinations of this College and of the Society of Arts were distributed. The chair was taken by Mr. Alderman Finnis, and the Right Hon. Sir Stafford Northcote, Bart., M.P., distributed the prizes. The Rev. J. Maskell, the hon. secretary, read the sixth annual report, congratulating the members upon the continued prosperity of the Institution. Although it has been a period of considerable commercial depression, the average of members has been well sustained, and their interest in the work of the classes evidenced in the most encouraging manner. The average number of students during the year exceeded 840; and the average number of vouchers issued, to enable many of these students to join several classes, amounted to 1,050. Of the zeal and industry of the members, ample proof is

furnished by the results of the various examinations. Although a smaller number of candidates offered themselves for examination, both at the Society of Arts and at the College, yet the proportion of prizes and first-class certificates is equal to that of any previous year. Out of the 61 prizes awarded by the Society of Arts, 11 were won by this Institution. These results will be better appreciated when it is understood that 1,439 candidates from all parts of the kingdom, of whom 57 were students from this College, competed for these prizes; also, that out of the 339 first-class certificates awarded, the College obtained 33. The College has acquired additional lustre by obtaining, for the third time, the Prince Consort's Prize of twenty-five guineas. This, which may justly be regarded as the blue riband of the Society of Arts, was awarded this year to Mr. W. Meadows. Upon information of this being communicated to the Queen, as patron of the College, Her Majesty was pleased to express "the greatest satisfaction at the marked success of the City of London College." The result of the examinations conducted by the hon. examiners of the College has also been very encouraging; sixty-three candidates presented themselves, and of these thirty-one obtained first-class certificates, nineteen second-class, and twenty third-class. Prizes were obtained as follows:—Arithmetic, W. Spiers; Book-keeping, J. Moles; Free-hand Drawing, J. K. Elliott; Geography, W. Spiers. The Annual Scholarship of £10, with free admission to the College for one year, allotted to the student who obtained the highest aggregate number of marks in any three of the subjects of examination—W. Spiers. The Greatorex Prize of £5, for proficiency in modern languages—J. E. Huntsman. The Lowth Prize of £3, allotted to the student who has attended the classes most regularly in three of the subjects of examination, provided he obtained two first-class certificates, and his conduct and character be unimpeachable—J. T. Medhurst. The English Essay Prize (subject, "Co-operative Societies") of £2—J. H. Ingram, J. B. Muir, *Æg.* The Goethe German Essay Prizes of £3 and £2, founded by the Professor of German, Dr. Zerff, for the encouragement of the study of that language—T. Abbott, 1st prize; 2nd prize not awarded. The Thompson Prize of £5, for proficiency in arithmetic and book-keeping—W. Spiers. The Principal's Divinity Prize of £3 3s.—T. E. Skuse. Two classes of the College are now in connection with the Science and Art Department at South Kensington, viz., chemistry and drawing. Students from these classes were presented to the Government examinations held last spring, and passed with great credit to their instructors. The council desire particularly to allude to the success of Mr. Archibald Liversidge, who has obtained from the Government Examiners a Queen's scholarship, nine first-class and four second-class certificates, in addition to a gold medal for mineralogy, and a bronze medal for inorganic chemistry. So much of the credit of this success is due to the zealous and accomplished teacher of chemistry in this Institution, the Rev. Burford W. Gibsons, M.A., B.Sc., that the council desire, with special and grateful emphasis, to make this announcement. The balance-sheet shows a deficit of £57 0s. 2d. on the year's working, but this must not be attributed to the failure of any one essential department of the College, but may be regarded, perhaps, as a testimony of increased educational success. It has arisen partly from the loss of sub-lettings and partly from the employment of a more popular, and therefore a more expensive, class of lecturers. The council are not encouraged, by any adequate amount of public support, to pursue this system of paid lecturers, and will probably be compelled to fall back upon the old system, since, in their experience, professional lecturers of great repute can only be engaged at a considerable loss to the funds of the College. The College is now firmly established, and on all hands acknowledged to be a success.—The Chairman moved the adoption of the report, and congratulated the

meeting upon its extremely satisfactory character. The proposition having been agreed to, he introduced Sir Stafford Northcote, who distributed the prizes and certificates to each of the successful students who had gained them, their names having been first called by the Rev. R. Whittington, the Principal of the College.—The ceremony being over, Sir Stafford Northcote addressed the meeting at length. He expressed the great pleasure he felt in being permitted to witness such a picture as that which the meeting presented. He was not previously aware that the City possessed an institution which conferred such benefit upon so large a body, and that could effect such gratifying results in the way of education. All men's minds were turned just now to the consideration as to how the people were to be educated, and amidst the different schemes and systems propounded those most interested were puzzled which to accept. Out of this chaos, however, there must eventually be evolved a system that would prove acceptable to all. In the meantime we were not standing still, and such institutions as the City of London College afforded the means for the acquirement of that mental culture which was desirable for all.—The Rev. C. Mackenzie proposed a vote to the Society of Arts, which was seconded by Mr. J. P. Gassiot, F.R.S., and carried.—Mr. Harry Chester, as a vice-president of the Society, acknowledged the compliment, and expressed his belief that education must sooner or later be made compulsory.—Archdeacon Emery, Mr. Alderman Cotton, the Rev. Mr. Freemantle, Mr. R. N. Fowler, and other gentlemen having spoken, the proceedings terminated with the usual compliment to the Chairman.

THE ECOLE CENTRALE D'ARCHITECTURE AT PARIS.

On the evening of the day of opening the session, 11th inst., already reported briefly in the *Journal*, a banquet was given at the Grand Hôtel, in honour of the South Kensington Museum, represented by Mr. Henry Cole, the director, Mr. R. Thompson and Mr. Owen, assistant directors, which was attended by M. Emile de Girardin, M. Guerauld, M. Arles Dufour, Baron Lesseps, M. Martin, M. Viollet le Duc, M. Christofle, M. Trelat, and about eighty other gentlemen connected with the Arts. The dinner was a very handsome one. Mr. Cole's health was drunk, with success to the Museum; and speeches were made by M. E. Girardin, M. Arles Dufour, M. Trelat, M. Viollet le Duc, Mr. Cole and Mr. Philip Owen. At the opening of the Session of the School, Mr. Cole delivered his *discours* in French. The following is a correct version in English. It contains some points of principle which seem worthy of preservation for the consideration of members:—

GENTLEMEN,—Readers of the Bible at the Exhibition—thanks to the Emperor—you know well that no man is a prophet in his own country! If the South Kensington Museum were animate, it would express surprise and thanks for your gracious recognition of it to-day, for in its own country it has to fight for its existence. Parliament pays for it, but discusses it stoutly, which is wholesome. An ignorant public, it is true, flocks with pleasure through its galleries, but our high priests of architecture in England crucified the author of the plan of its building—Captain Fowke—yet the International Jury at your Exhibition gave a gold medal of the first class to him! Among friends as you are of this museum, you will tolerate a few words in bad French about it, even from one who is no architect. I ask myself why have you done me this honour, and I fancy that I trace the reason in some analogy which exists between your Ecole Centrale and my museum at Kensington. I think we, in London, are working out in practice the theoretical principles you teach here. If I am right, I think you regard construction as the backbone of a building, so do we; you consider the wants which the building is to supply as a first principle, so do we; you consider the nature of

materials as regulating form, so do we; then you proceed, and not till then, to consider decoration, so do we; you make decoration subordinate to construction, so do we at Kensington. Is it a heresy to do so? The wants of a public museum, frequented by thousands of blouses and fustian jackets, differ from those of a religious temple, whether Egyptian, Greek, or Roman. They are not those of a cathedral or church, reformed or not reformed. They are not those of a fortification or macchicolated tower; and not those of a monarch's palace, or noble's chateau. Museums are a sort of modern socialistic building, where the floors are level for all, and there is no dais; and the architecture of past ages does not offer many precedents for the arrangement of them. London has not the bright climate of Paris, and, therefore, it is our aim to give our museum all the light of heaven possible. Having secured the light, we regulate its quantity by blinds. It is easy to stop out light, but not to make it! We have to provide heating on a large scale, and we use kilometres of steam pipes not over-heated. Thus early in our infancy we light up 14,000 gas burners in the evening, and expect to grow to the use of 40,000. We ventilate by means of the primitive principle of introducing plenty of fresh air, warmed or cooled, according to the season, and letting out the vitiated air at the roof. We use red brick and terra-cotta; for London has not the beautiful stone of Paris, which cuts like cheese; and terra-cotta, if properly baked, resists atmospheric influences more than granite. You may recollect an archway and some brickwork in the Exposition, to which the despotism of logical classification at last assigned a place in the machinery gallery. We have had the honour of presenting them to the Conservatoire des Arts-et-Métiers, where they will be re-erected in the garden. We follow at Kensington the example you set us in Paris, of daring to use iron to support roofs and floors. We even show iron girders, and decorate them with gilding. On the walls we place majolica, and mosaics of earthenware tesserae, to which I beg leave to call your attention as a novelty, furnishing ready means of making wall pictures durable till the end of the world. Gentlemen,—if you will defy the terrors of the Manche, and have faith in all remedies against sea-sickness, and visit the Kensington Museum, it will delight us to act as your pioneers there, when I hope you will find that we are true to the principles of sound architecture, so ably instilled by the Ecole Centrale d'Architecture. Perhaps you may find there some useful suggestions, which you will accept in return for the remarkable specimens of studies which you have allowed us to acquire from your school. To me it seems that both architecture and many other things are, now-a-days, in a period of transition. Architecture is not studied in the cloister for buildings for the priesthood. It is not practised merely for the warrior or his fortresses, or for the monarch's palace; it has to administer to the wants of a civilised democracy all over the world. It can only advance when guided by common sense, scientific knowledge, and artistic inspiration, practised with all humility and devotion. May M. Haussmann continue to spare the peaceful gardens of the Ecole Centrale, —which remind me of the gardens of an old monastery,—for a long time, to promote studies so elevating, useful, peaceful, and conducive to man's happiness as yours are. Gentlemen students,—I have the pleasure of stating that your director permits me to offer a prize, for the next session, to that student who shall make the best study of the human figure. The prize will be awarded by the students themselves.

Fine Arts.

ARTISTIC COURTESY.—French as well as English artists found great difficulty in obtaining the loan of works which had passed out of their hands for the gallery of

the late universal exhibition, and consequently many artists of both nations were most inadequately represented. Meissonnier was fortunate enough to obtain the loan of a very considerable number of his best works, and few artists were so completely represented. When the exhibition was closed, the pictures were of course returned to their owners, and, in each case, not only with a letter of thanks, but also an original sketch from Meissonnier's own hand. The idea was a happy one, and deserves to be recorded.

Manufactures.

TEST FOR ALKALIES.—A new and highly sensitive reagent for alkalies and alkaline earths has recently been discovered by Professor Böttger, in the leaves of *Coleus vorsehaffetti*. The reagent is prepared by digesting the fully-developed leaves of this plant in alcohol, and impregnating slips of Swedish filtering paper with the solution obtained. This test-paper is of a beautiful red colour, which becomes green under the influence of an alkali or alkaline earth. It is not affected by free carbonic acid, so that it may be used for detecting traces of carbonate of lime in water.

REGULATING WATCHES IN SWITZERLAND.—At Neufchatel, in Switzerland, is an observatory organised on an extensive scale, and provided with the very finest instruments. Besides purely scientific results, it renders immense service to chronometer makers by enabling them to produce watches which are every day becoming more perfect. This is important to the branch of industry in question, which can only exist by constant improvement. Prizes are given to makers whose watches or chronometers approach as nearly as possible to perfection. To give an idea of the wonderful precision that has been obtained in this branch of industry, a marine chronometer, lately tested, gave the mean variations from day to day, in two months' trial, sec. 0.164. Common watches become more perfect every year. On 67 watches tested since 1866, the mean variation was only $\frac{1}{3}$ of a second in 24 hours.

In 1862 the mean variation was	sec.	1.61
" 1863	"	1.28
" 1864	"	1.27
" 1865	"	0.88
" 1866	"	0.74

On more than three quarters of the chronometers observed in 1866, the mean variation was less than half a second. These practical results show the importance of such observatories as that of Neufchatel.

Commerce.

THE STATE OF COMMERCE IN ITALY.—The imports for the year 1865 amounted to 965,173,672 frs. (£38,606,947), and the exports to 558,285,576 frs. (£22,331,425). As regards imports, the most important items are those for silk stuffs, 168,500,000 frs.; cereals, grain of every sort and flour, for 150,000,000 frs.; colonial produce for 128,250,000 frs.; cotton goods, for 106,000,000 frs.; woollens, for 84,250,000 frs.; metallic goods, for 60,500,000 frs.; hardware, 44,000,000 frs.; hides, for 29,000,000 frs.; flax and hemp, 21,500,000 frs.; timber, 20,000,000 frs.; tallow, and other fatty matters, 16,000,000 frs.; earthenware and glass, 15,500,000 frs.; tobacco, 15,500,000 frs.; and 15,250,000 frs. for fish. The principal items in the export trade of the kingdom are silk, 149,000,000 frs.; wines, oils, &c., about 115,000,000 frs.; grain, 44,000,000 frs.; stone, marble, earths, &c., 41,000,000 frs.; flax and hemp, 26,250,000 frs.; fruits, seeds, vegetables, and plants, 67,000,000 frs.; cotton, 9,250,000 frs.; timber, 9,000,000 frs.; paper and

books, nearly 7,000,000 frs. England and France are the only two countries which dispute with Italy the supremacy in her markets. The duties on imports and exports amount to 62,760,000 frs.; the tariff of 6.36 per cent. has been reduced to 4.03 per cent. The extent of coast line of the kingdom of Italy is estimated at about 3,360 English miles. The total tonnage of 17,048 sailing and steam vessels, which constitute the merchant navy of Italy, amounted to 722,263 tons; in 1865, 65,727 vessels were entered at the ports of the kingdom, including those of the Venetian provinces, and 18,048 were cleared with cargoes for the various ports of England, France, Austria, Russia, Turkey, Spain, and Roumania. These figures will give some idea of the state of Italian commerce, and will show the immense importance of developing especially the industries and manufactures of the country, so as to be able to compete with England and France, at least in her own markets.

THE PRODUCTION OF COIN IN ITALY.—The quantity of money coined at the three Mints in Italy, from 1862 to 1865, amounted to the value of 331,961,292 francs (£13,278,452 sterling); of this 175,511,850 francs were gold, 128,449,442 silver, and 28,000,000 copper; of these, 86,081,854 francs were coined at the Mint of Milan, 31,477,426 at Naples, and at the Mint of Turin 214,402,191 francs, whilst during the same period 35,248,068 francs were coined at Venice. The total amount of money coined in the whole of Italy, from the beginning of the present century, amounts to 1,507,371,205 francs (£60,294,848 sterling). The value of buildings, machinery, motive power and implements, constituting the four above-mentioned mints, amounts to 2,189,557 francs; 534 persons are employed in these mints at an annual expense of 428,553 francs per annum.

MONTHLY PROGRESS OF MONT CENIS TUNNEL.—According to the usual monthly statement of the progress made in the Mont Cenis Tunnel, published by the Italian Government, the length of boring during the month of October was 131.85 metres, of which 71.20 metres were on the Italian side at Bardonnèche, and 60.65 metres at Modane, on the French. The position of the tunnel up to the 31st October is as follows:—

	Mètres.
Total length of tunnel	12,220.00
" boring	7,664.10
Remaining to be done	4,555.90

During the first ten months of the present year, the progress made in the tunnel has been 1,329.56 metres, whilst on the other hand, during the whole of last year, the progress made was only 1,024.99 metres. The boring at the southern end advances more rapidly than at the north. Up to the 31st October, the progress made at the south was 4,640.10 metres, whilst at the north end only 3,024 metres have been bored. From the steady progress made every month, it may safely be predicted that in 1870 this great work will be completed.

Colonies.

THE LAST SETTLEMENT FORMED IN QUEENSLAND is Burke Town, at the head of the Gulf of Carpentaria, and, according to the latest news, it is thriving.

BANKING IN VICTORIA.—A return, published by the Registrar-General of Victoria, shows that the total deposits held by the banks amount to £5,301,500 12s. 8d., showing an increase of £1,000 since last year. The total amount of liabilities is £9,746,575, and of assets £14,885,354. The amount of notes in circulation for the year 1866 is £1,211,887, and the coined money £1,377,645. The total number of depositors at the savings' bank at the close of the year ended June, 1866, was 16,985, and the amount deposited £642,028. There were 6,101 new accounts opened, and 7,064 accounts closed.

THE LABOUR QUESTION IN QUEENSLAND is receiving more and more attention. Many who are contemplating sowing cotton extensively, are beginning to cast about for the necessary labourers to pick it by-and-bye, and a general uneasiness is felt on the subject. From all parts of the colony increased emigration is much wished for. In the north it seems to be felt that the only sort of remedy will be the introduction of coolies or South Sea islanders. In the southern portion of the colony, however, the demand is for the introduction of agricultural labourers from home. A great want of farming hands is already felt, and good ploughmen cannot be got in sufficient numbers.

Notes.

SELLING FOOD BY AUCTION.—The mode by which all kinds of perishable goods, consisting of poultry, fish, meat, fruit, and provisions, are disposed of in the Paris and continental wholesale markets is by auction, which method has been commenced by Messrs. Browne, of Newgate-street, whose very large supplies compel them, in consequence of the frequent late deliveries by the railways, to have recourse to this plan to effect sales to enable them to make returns to their consignees. Mr. George Brooke, their manager, has been over to Paris, and it is under his hammer that the new system was inaugurated.

A DEAF AND DUMB BACHELOR OF SCIENCES.—A pupil of the Deaf and Dumb Asylum, of Paris, has just obtained the degree of bachelor in Science, the first case on record.

ROCK SALT.—The Prussian Government has been recently making active researches in the kingdom to discover fresh mines of rock salt. The borings, executed under the orders of Count d'Itzenplitz, Minister of Commerce, have now led to the discovery of a rich deposit of that mineral near Spereberg, to the north of the Lake Krummsee, at a distance of twenty-two miles from Berlin. The salt is found at a depth of 300 feet from the surface.

SOUTH LONDON WORKING MEN'S COLLEGE.—This college is intended to offer to working men in South London an education of a high character, by means of classes in languages, mathematics, and physical science, together with lectures on history, politics, moral and social science, &c. There will be also, in connection with the college, a night school (for men only), a day school for boys and girls, and afternoon classes for women. The college is to consist of six classes of members:—1. Ordinary students. 2. Certificated students: those who have gained at least one certificate in some subject, as algebra, Latin, &c. 3. Scholars—those who have passed a satisfactory examination in one branch of study, as mathematics, physics, &c. 4. Associates—those who have gained two certificates, and also passed a satisfactory examination in Bible history, English history, arithmetic, and English grammar. 5. Fellows—those who have been elected by the Council from among the associates on account of their moral qualities, and their willingness and ability to take part in the college teaching. 6. The Council, or governing body of the college. Every alternate vacancy in the Council will be filled by the election of a fellow. The college is expected to open immediately after Christmas. Particulars of the classes, school, &c., may be had from the Hon. Sec., William Rossiter, Tottenham, N.

Correspondence.

Society of Antiquaries, London,
November 13th, 1867.

THE INITIALS F.S.A.—SIR,—Would you have the kindness to call the attention of your governing body to the following resolution, passed at the last meeting of

our council, Earl Stanhope, president, in the chair:—"It having been represented to the council that several members of the Society for the Encouragement of Arts and Manufactures, &c., have appended to their names the initials F.S.A., and thus led to a confusion between the 'members' of that society and the 'fellows' of this, the secretary was instructed to call upon Mr. Le Neve Foster, secretary to the aforesaid society, and invite his attention to the inconvenience of this practice." Hoping some measures may be taken by your council to deter your members from adopting initials to which they have no title,—I am, &c., C. KNIGHT WATSON, Secretary.

P. Le Neve Foster, Esq.,
&c., &c.

*** The secretary begs to inform members of the Society of Arts that, neither by the charter, by the bye-laws, nor by custom, is there any authority for their placing the letters "F.S.A." after their names.

THE POSTAL TELEGRAPH.—SIR,—It will be satisfactory to those members of the Society, and of the chambers of commerce connected with it, to be informed that her Majesty's Government has adopted the principle of a telegraphic post, and that a Bill is to be submitted to Parliament to purchase the interest of, or to make fair compensation to, the trading companies for their outlay and plant. It is proposed that the maximum rate of general messages for twenty words chargeable for a telegraphic message shall be one shilling. But it is to be borne in mind that, for the reasons I explained in my paper, from the closer proximity of the postal stations, which will be eight or nine to one of the ordinary telegraph stations, the reduction of the time and charge of any special foot messengers will be considerable. Though it is proposed that the post-office shall be restricted to a maximum charge of a shilling for a message of twenty words, it is proposed that the postal authorities shall be entrusted with the discretion of adopting such minimum charge as they shall deem expedient. I hope that the facts may be in due time considered for warranting the exercise of that discretion in beginning where Belgium has successfully ended, in the half-franc message, *i.e.*, in England at the sixpenny message, at all events for large and populous districts, for in Paris the half-franc message has brought a large increase of the net return. I believe that where a change of habit is to be produced, especially in slow districts, and with the lower classes, the best speed will be attained by the highest stimulus of the lowest charges applied in the first instance. Apprehensions are expressed that a general postal telegraph system will not accommodate, or may impede, separate means of telegraphic communication by large manufacturing or commercial establishments, or by private individuals, now in course of extension. On the contrary, as the postal service now admits of private letter-boxes for large firms, in manufacturing towns, it may do all that is now done in telegraphic communication for such firms, or for private individuals, by trading companies, and more. It may allow participation in the public service, and care of private means and lines at a lower rent for the service than it can be given for separately. The manufacturer or the merchant may have a wire of his own, from his private house in the suburb to the next postal station, and he may telegraph to that station—"Put me in communication with my office, or my works;" whereupon his line would be "switched on" to the telegraph line, and to his private wire at the other end, and he would be signalled that he may go on communicating, in cipher if he likes. In large towns, and under many circumstances, I apprehend, separate wires may be given for branch banks, or to shipping establishments, or newspapers. In short, everything now in progress may have a more ready, economical, and complete development, more ready and complete, even, than at present on the Continent. I take the opportunity of mentioning, as a point of special interest to members of the Society, that some protectionist restrictions on the conveyance of samples or specimens by post

have been withdrawn, so that up to 24 oz., at a charge of twopence for every quarter of a pound, or fraction of a quarter of a pound; a commencement, though a slow one, may be said to be made in a parcel post.—I am, &c.,
EDWIN CHADWICK.
Richmond, Surrey.

MEETINGS FOR THE ENSUING WEEK.

- MON.....R. Geographical, 84. 1. Letter from Dr. Kock: Fresh News regarding Livingstone. 2. Mr. A. S. Bickmore, "Journey through Central China from Canton." 3. Mr. J. Collinson, "Surveys in Nicaragua."
Actuaries, 7. 1. Mr. Samuel Brown, "Report on the Sixth International Statistical Congress at Florence." 2. "Memoir on Instrument for furnishing the D numbers to four figures each, in two Joint Life Annuity Tables, on any basis."
TUES ...Medical and Chirurgical, 84.
Civil Engineers, 8. Continued discussion upon Mr. Byrne's paper, "Experiments on the Removal of Organic and Inorganic Substances in Water."
Ethnological, 8. 1. Sir John Lubbock, "On the Origin of Civilisation." 2. Major R. Stuart, "On the Vlaks of Mount Pinus."
WED ...Society of Arts, 8. Professor Leone Levi, "On the Diplomatic and other Conferences held recently in Paris with reference to International Coinage, Weights, and Measures."
Archæological Assoc., 84.
THUR ...Antiquaries, 84.
Zoological, 84.
Philosophical Club, 6.
Mathematical, 8.
SATRoyal, 4. Annual General Meeting.

Patents.

From Commissioners of Patents' Journal, November 15th.

GRANTS OF PROVISIONAL PROTECTION.

Anchors—3112—T. Wingate, jun.
Armour plates—3019—F. M. Smith.
Axles—3071—J. Watkins.
Bags, dressing, &c.—3007—T. Stennett.
Barley, pearl, decortivating—3073—D. Sykes.
Boiler tubes, cleaning—3059—Rt. Hon. J. Earl of Caithness.
Boilers—2929—J. Seward and H. Smith.
Boilers—3070—I. Kendrick.
Boilers—3094—C. Riley.
Boilers—3122—W. E. Newton.
Boilers, preventing incrustation in—2997—C. W. Harrison.
Boilers, preventing incrustation in—3051—G. Davies.
Books, counter-check—3096—J. Fraser and G. Duncan.
Braces, looped fabric for—3114—S. H. Foster and T. Bunney.
Brushes—3089—J. J. Hicks.
Buildings, &c.—3080—S. Parr and A. Strong.
Cables, &c., twisting and coiling—3045—E. T. Hughes.
Cap frames for spinning worsted, &c.—3053—J. Feather.
Carpet linings—3005—W. R. Lake.
Carriages—2993—H. Ritchie.
Cases for packing bottles—3085—A. G. Avenell.
Cisterns, preventing effluvia entering—3047—W. Bishop and B. Burningham.
Coal, &c., machinery for getting—3076—J. Sturgeon.
Corsets—3088—R. Parry.
Corsets, &c.—3118—E. C. Vine.
Digging machines—3067—O. C. Evans.
Distilling apparatus, &c.—3072—A. Chaplin.
Drawer suspenders and brace fastenings—3074—F. Tew.
Dye, blue—3064—W. S. Dixon.
Evaporators—3031—W. E. Bourran.
Fabrics, doubling, &c.—3093—J. Orr.
Fabrics, linen and cotton—2738—A. Ward and C. G. Virgo.
Fabrics, ornamental—2985—J. Thom and A. Maclure.
Fabrics, removing knots, &c., from—3011—B. Cooper.
Fibrous substances, machinery for spinning, &c.—3063—W. Hall, J. Wren, and J. Brandwood.
Fire-arms, breech-loading—3075—R. B. Roden.
Fire-arms, ordnance, &c.—3039—The Hon. H. G. P. Meade.
Food-preserving, &c., exhausting the air in vessels for—3069—W. R. Lake.
Furnaces—3035—J. Glover.
Gaiters—2921—J. Hale.
Gas—2989—G. Olney.
Gas, &c., lamps, shades for—3084—J. Scott.
Gates—3083—W. Darcey.
Glass, ornamenting—2938—H. R. St. Martin.
Gunpowder flasks, &c., filling—3078—G. Haycraft.
Hats and caps—3077—H. and G. S. Hunter.
India-rubber, &c., substitute for—3103—W. R. Lake.
Kilns—2991—H. Adcock.
Lace—3033—C. E. Brooman.

Lace—3091—T. B. Cutts and F. W. Brooksbank.
Lace, &c., machines—3103—T. Wright and I. Fox.
Leather, joining—3097—W. Dickinson.
Levels—3017—W. R. Lake.
Light, artificial—3105—J. Kidd.
Locomotives—3023—W. Kendall.
Looms—3013—R. Carter.
Looms—3081—J. Wright and M. B. Nairn.
Looms—3098—R. Ackroyd and G. Hodgson.
Marking materials, &c., holders for—3015—W. E. Wiley.
Matches—3016—R. M. Letchford.
Mats and matting—3092—W. Cooke and W. Francis.
Mattresses, feather beds, &c.—2956—J. Clapier.
Motive-power—2995—A. M. Clark.
Motive-power—3021—J. Brooks.
Motive-power—3066—J. T. Caird and S. Robertson.
Motive-power—3090—A. M. Clark.
Paper, preparing for drawing, &c.—2844—T. Nelson.
Photographs, &c., colouring—3057—F. Piercy.
Pianofortes—3079—J. Gilmour.
Postage stamps, &c., manufacturing—3009—A. M. Clark.
Pumps—3027—W. Payne and A. B. Fraser.
Pumps—3062—R. Clegg.
Reaping and mowing machines—2905—D. Pidgeon & W. Manwaring.
Screw propellers—3061—C. and J. Jobson.
Sea-sickness, apparatus for preventing—2602—H. A. Bordin.
Seed, &c., machine for dropping, &c.—3043—G. W. B. Edwards.
Sewing machines—2887—W. Winter.
Sewing machines—3106—A. V. Newton.
Ships, applying metal sheathing to—3095—W. Day.
Ships of war, &c., plating—3003—G. J. Günther.
Shuttles—3100—R. Baguley.
Smoke, consuming, &c.—2987—J. Ellison and J. Stirk.
Soil, excavating, &c.—3049—W. P. Savage.
Spoons, forks, and ladles—3037—T. Bennett.
Steam generators—3025—A. M. Clark.
Steel or iron plates, covering with copper—3107—W. E. Newton.
Stone, &c., preserving—2919—J. Cubitt.
Tobacco pipes—2963—C. Ritchie.
Upholstery or furniture springs, cap for—3068—W. R. Lake.
Valves—3055—J. B. Fenby.
Whips, canes, &c., holders for—3058—J. H. Johnson.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

Sewing machines—3192—G. T. Bousfield.
Street tramways—3143—C. H. Bright.
Type-setting machines—3164—G. T. Bousfield.
Workmen's dwellings—3141—E. Sephton.

PATENTS SEALED.

1451. C. E. Brooman.	1490. H. A. Dufrené.
1455. J. Denis.	1497. V. Barford and J. Skerman.
1457. H. Peel.	1499. W. M. Cranston.
1459. A. Angot.	1500. D. Thomson.
1463. W. R. Lake.	1504. J. Gough.
1464. W. R. Lake.	1534. A. M. Clark.
1465. W. R. Lake.	1549. C. Sanderson.
1467. S. Regan.	1555. A. M. Clark.
1474. J. T. and E. J. Bland and T. Brevetor.	1560. H. B. Barlow.
1485. J. L. Norton.	1582. A. M. Clark.
1486. J. L. Norton.	1611. M. A. F. Mennons.
1488. J. Bottomley.	1641. J. Inshaw.
1489. T. McComas.	1660. B. Templar.
	2274. M. Jones.

From Commissioners of Patents' Journal, November 19th.

PATENTS SEALED.

1487. T. Metcalf.	1557. W. Ryland.
1498. E. Young.	1565. P. A. J. Dujardin.
1502. J. Davies.	1569. H. Pether.
1509. C. H. Thurnham.	1578. H. and F. C. Cockey.
1511. W. F. Henson.	1599. W. E. Newton.
1513. A. Barclay.	1608. W. E. Newton.
1515. O. Wassermann and J. H. Herbst.	1609. W. E. Newton.
1516. J. Mabson.	1623. P. Lawrence.
1520. J. Hargreaves & T. Robinson.	1624. A. M. Clark.
	1645. T. Laidlaw.
1528. A. A. Hely & J. Marshall.	1689. J. C. Ralston.
1538. T. G. Green.	1752. W. E. Newton.
1644. T. W. Helliwell.	2002. W. Andrews.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

2828. T. Jones.	2848. P. Lachéz.
3205. A. V. Newton.	2850. J. Bullough.
2819. C. Martin.	2862. J. Aubin.
2920. G. M. Bayelt and J. E. Vigoulète.	2875. H. Wilson.
2884. M. Henry.	2858. M. Des'rem.
	2869. R. G. Grimes.

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2788. R. W. and J. Waithman.	2792. J. S. Crosland.
2789. R. Furnival.	2802. A. Henry.
2935. J. A. Fanshawe and J. A. Jacques.	2855. W. and E. Cope and W. G. Ward.
3150. W. Clark.	3138. J. Chatterton & W. Smith.